5. HM2.2.2 Data Table

This table contains Hatfield Model v.2.2.2 geological information (data which in HM2.2.2 were collected from the BCM-PLUS Model). Each CBG is assigned a value for the four fields listed below. This geological information is then used in the model to modify placement costs by degree of difficulty.

Fields in HM2.2.2 Data table

- *CBG*
- *ROCK DEPTH*
- *ROCK HARD*
- *SURFACE TEXTURE*
- *WATER DEPTH*

6. Percent Empty Table

The percentage of land empty is calculated by identifying census blocks which have no business or residential lines using the Donnelly and Dun and Bradstreet databases. The land area of these "empty" Census blocks are added to the water (rivers and lakes) within a CBG. This amount is divided by the total land area to determine total uninhabited percentage of the CBG.

Fields in Percentage Empty Table

- *CBG*
- *AREA LAND (SQ MILES)*
- *WATER*
- *TOTAL AREA*
- *LAND EMPTY*
- *LAND EMPTY plus WATER*
- *% EMPTY*

7. Single Line Business Table

To determine the number of single-line businesses in each CBG, company size data from Dun & Bradstreet were applied to an employees per phone line distribution. Data were derived from a sample of 3,414 small and medium sized firms (from 26 states) with sales under $10 million.

Fields in Single Line Business

- *CBG*
- *SINGLE LINE BUSINESS*

8. V&H Coordinates Table

PNR and Associates provides the latitude and longitude of the centroid of each CBG. These data were used to determine the Vertical and Horizontal (V&H) coordinates of the CBG's centroid. The database uses the V&H coordinates of the CBG and of the wire center to calculate the distances and angles listed above in the distance table.

Fields in V&H Table

- *CBG*
- *VERTICAL COORDINATE*
- *HORIZONTAL COORDINATE*

9. Wire Center Table

This table associates each wire center with its V & H, operating company number (OCN), company name and group. The OCN value has a two digit state code appended to the original four digit OCN code, making the six digit state code unique across states. The group categories are listed below. The purpose of this table is to assign Wire Centers to companies and companies to groups.

Group No.	Description
1	Non-RBOC Large Tier 1 (GTE/CONTEL and SPRINT/CENTEL)
2	All other independent telephone companies that file ARMIS
3	Greater than 50,000 lines nationwide, but that do not file ARMIS
4	Less than 50,000 lines nationwide (do not file ARMIS)
8	RBOC and SNET

The table contains the following fields:

Fields in Wire Center Table

- *STATE*
- *WIRE CENTER*
- *WC - VERTICAL COORDINATE*
- *WC- HORIZONTAL COORDINATE*
- *OCN*
- *COMPANY NAME*
- *GROUP*

II. HM 4.0 Input Issues

1. CBGs moving to other states

Issue

Occasionally, a CBG is assigned to a wire center that is in a state that neighbors the CBG's state.

Action

These CBG's are moved into the state in which the wire center is located and becomes part of the geography for that state.

2. CBG with Zero Area

Issue

Occasionally, CBGs are reported with zero area, but the CBG contains households or businesses.

Action

Calculate a new area for the CBG, then adjust the density (lines/sq. mile) using the following equation:

1. New area = 0.000386 x (No. of households + No. of firms)
2. New density = No. of total lines / new area.

Note: 0.000386 is the square mile equivalent of a 10,000 square foot lot.

3. Percent Empty Calculation

Issue

Occasionally, a CBG is reported to be 100% empty, but the CBG contains households or businesses.

Action

Substitute a new percent empty for each CBG, according to the following rules.

1. If the total area of CBG is less than 0.5 square miles, adjust the percent empty to zero.
2. If the total area of the CBG is greater than 0.5 square miles, the new percent empty was calculated by the following equation:

$$1 - \frac{(0.000386 \times (\text{No. of households} + \text{No. of firms}))}{\text{Area of CBG}}$$

Note: 0.000386 is the square mile equivalent of a 10,000 square foot lot.

III. HM 4.0 Inputs Field Descriptions (per CBG)

Field	*Description*
STATE:	State Code
CLLI:	8 Digit CLLI of the wire center to which the CBG belongs
COMPANY:	Company Name
OCN:	6 digit OCN for each company - first two digits represent census state code and the next four is the LERG OCN code
GROUP:	1=NonRBOC Large Tier 1 (GTE/CONTEL and SPRINT/CENTEL) 2=All other independent telephone companies which file ARMIS 3=Greater than 50,000 lines nationwide and do not file ARMIS 4=Less than 50,000 lines nationwide and do not file ARMIS 8=RBOC and SNET
CBG:	Total geo-code
QUAD:	Quadrant where the centroid of the CBG falls CLLI
ALPHA:	Angle from main feeder route to CBG centroid
OMEGA:	Angle from horizontal to CBG centroid
DISTANCE:	Distance between centroid of the Wire Center and the centroid of the CBG
AREA:	CBG area including land and water
% EMPTY:	% of area of the CBG with no lines (% of empty land + water)
DENSITY:	Total Lines per square mile
ROCK DEPTH:	Geological data from HM2.2.2
SURF TEXT:	Geological data from HM2.2.2
ROCK HARD:	Geological data from HM2.2.2
WATER TABLE:	Geological data from HM2.2.2
TOTAL LINES:	Sum of Bus., Res., Special, and Public lines
BUS LINES:	Total Business lines
RES LINES:	Total Residential lines
SPECIAL LINES:	Total Special lines (Adjusted to 4308 1995 ARMIS)
PUBLIC LINES:	Total Public lines
SINGLE LB:	Number of SLB
HOUSEHOLDS:	Households with telephone per CBG
HU-1 DETACH:	1 unit structure detached from any other (all housing types include occupied and vacant)
HU-1 ATTACH:	1 unit structure attached to other structures

Field	*Description*
HU-2:	Structure containing 2 units
HU-4:	Structure containing 4 units
HU 5-9:	Structure containing 5-9 units
HU 10-19:	Structure containing 10-19 units
HU 20-49:	Structure containing 20-49 units
HU 50+:	Structure containing more than 50 units
MOBILE:	Mobile home or trailer
OTHER:	Any other
FIRMS:	Firms in a CBG (does not represent locations)
EMPLOYEES:	Employees in CBG

Appendix B – Hatfield Model Release 4.0 Inputs, Assumptions and Default Values

This appendix provides a list of the Hatfield Model Release 4.0 user inputs, as well as their definition and the default values set in the model. It is organized based on the series of user input dialogue boxes that are used to set parameters in the Hatfield Model interface. This yields the following hierarchy:

Input Parameter Category (distribution, feeder, wire center, expense, and excavation)
Category dialogue box (NID, drop, switching parameters, etc.)
User Input field (fiber strands per remote terminal, etc.)

The appendix is organized into two sections. The first contains the index of dialogue boxes and specific user input fields. The second lists the inputs with their definitions and default values. These are numbered sequentially from B1 through B178. To facilitate cross-referencing between the two sections, each user input field in the first section contains a numbered entry from the second section. Thus, for instance, the "B1" next to the Residential NID Materials, No Protector entry refers to the first item in the second section of the appendix.

With this organization, the appendix allows a user who is examining a given user input dialogue box and specific user input field to locate that box/field in the index in the first section, read the number of the corresponding input definition, and use that number to locate the input definition and default value in the second section.

Note that a few parameters are set in one module but used by several modules. In such cases, the parameter appears only once, but its use in other modules is noted at the end of each input parameter category in this index.

Part 1: Index of Dialogue Boxes and User Input Fields

Distribution

NID

B1	Residential NID materials, no protector
B1	Residential NID Basic Labor
B1	Residential Max Lines per NID
B1	Residential Protection Block, per pair
B1	Business NID case, no protector
B1	Business NID Basis Labor
B1	Business Protection Block, per pair

Drop

B2	Drop Distance

B3	Aerial Drop Installation, total
B3	Buried Drop Installation/foot
B4	Buried Drop Sharing Fraction
B5	Buried Drop Fraction
B6	Average Lines Per Business Locations
B7	Buried Terminal and Splice per Line
B7	Aerial Terminal and Splice per Line
B8	Buried Drop Investment per Foot
B8	Aerial Drop Investment per Foot
B8	Buried Pairs
B8	Aerial Pairs

Cable and Riser Investment

B9	Distribution Cable Size
B10	Distribution Cable, $/foot
B11	Riser Cable Size
B11	Riser Cable, $/foot

Poles and Conduit

B12	Pole Investment
B12	Pole Labor
B13	Buried Cable Sheath Multiplier
B14	Conduit Investment per Foot
B15	Spare Tubes per Route
B16	Regional Labor Adjustment Factor

Placement Fraction

B17	Aerial Fraction
B17	Underground Fraction

Cable Fill and Pole Spacing

B18	Cable Fill
B19	Pole Spacing

Geology and Clusters

B20	Difficult Terrain Distance Multiplier
B21	Rock Depth Threshold, inches
B22	Hard Rock Placement Multiplier
B23	Soft Rock Placement Multiplier
B24	Sidewalk / Street Fraction
B25	Local RT (per cluster) thresholds – Maximum Total Distance
B26	Town Factor
B27	Max lot size, acres
B28	Town lot size, acres

Long Loop Investments

B29	Repeater Investments, Installed
B30	Integrated COT, Installed
B31	Remote Multiplexer Common Equipment Investment, Installed
B32	Channel Unit Investment per Subscriber
B33	COT Investment per RT, Installed

SAI Investment

B34	Cable Size
B34	Indoor SAI
B34	Outdoor SAI

Dedicated Circuit Inputs

B35	Percentage of Dedicated Circuits
B36	Pairs per Dedicated Circuit

Feeder

Copper Placement

B37	Aerial Fraction
B37	Buried Fraction
B37	Underground Fraction
B38	Manhole Spacing/ft.
B39	Pole Spacing, ft.
B40	Pole Materials
B40	Pole Labor
B41	Inner Duct Investment per Foot

Fiber Placement

B42	Aerial Fraction
B42	Buried Fraction
B42	Underground Fraction
B43	Pullbox Spacing, ft.
B44	Buried Fiber Sheath Addition per Foot

Fill Factors

B45	Copper Feeder Fill
B46	Fiber Feeder Fill

Cable Costs

B47	Copper Investment per foot
B48	Fiber Investment per foot

DLC Equipment

B49	TR – 303 DLC Remote Terminal – Site and Power
B49	Low Density DLC Remote Terminal – Site and Power
B50	TR – 303 DLC Remote Terminal – Maximum Lines
B50	Low Density DLC Remote Terminal – Maximum Lines
B51	TR – 303 DLC Remote Terminal – RT Fill Factor
B51	Low Density DLC Remote Terminal – RT Fill Factor
B52	TR – 303 DLC Remote Terminal – Common Equipment Investment
B52	Low Density DLC Remote Terminal – Common Equipment Investment
B53	TR – 303 DLC Remote Terminal – POTS Channel Unit Investment
B53	Low Density DLC Remote Terminal – POTS Channel Unit Investment
B54	TR – 303 DLC Remote Terminal – POTS Lines per CU
B54	Low Density DLC Remote Terminal – POTS Lines per CU
B53	TR – 303 DLC Remote Terminal – Coin Channel Unit Investment

B53	Low Density DLC Remote Terminal – Coin Channel Unit Investment
B54	TR – 303 DLC Remote Terminal – Coin Lines per CU
B54	Low Density DLC Remote Terminal – Coin Lines per CU
B55	LD Crossover Lines
B56	TR – 303 DLC Remote Terminal – Fibers per RT
B56	Low Density DLC Remote Terminal – Fibers per RT
B57	TR – 303 DLC Remote Terminal – Optical Patch Panel
B57	Low Density DLC Remote Terminal – Optical Patch Panel
B58	Copper Feeder Max Distance, ft
B59	TR – 303 DLC Remote Terminal – Common Equipment Investment per 672 Lines
B59	Low Density DLC Remote Terminal – Common Equipment Investment per 96 Lines
B60	TR – 303 DLC Remote Terminal – Number of Max Line Modules / RT
B60	Low Density DLC Remote Terminal – Number of Max Line Modules / RT

Copper Manhole Investment

B61	Materials
B61	Frame and Cover
B61	Site Delivery
B61	Excavate and Backfill

Fiber Pullbox Investment

B62	Materials
B62	Installation

Note: The Feeder Module also uses inputs B13-B15.

Switching and Interoffice Transmission

End Office Switching

B63	Real time (BHCA)
B64	Traffic (BHCCS)
B65	Switch maximum line size
B66	Switch port administrative fill
B67	Switch maximum processor occupancy
B68	MDF/protector investment per line
B69	Analog line circuit offset of DLC per line
B70	Switch installation multiplier
B71	End Office Switching Investment Constant – BOC and Large ICO
B71	End Office Switching Investment Constant – Small ICO
B72	End Office Switching Investment Slope Term
B73	Processor Feature Loading Multiplier - Normal
B73	Processor Feature Loading Multiplier - Heavy business
B74	Processor Feature Loading Multiplier - Business penetration threshold

Wire Center

B75	Lot size, multiplier of switch room size
B76	Tandem/EO common factor
B77	Power

B78	Switch Room Size, square ft.
B79	Construction, square ft.
B80	Land, square ft.

Traffic Parameters

B81	Local Call Attempts
B82	Call Completion Factor
B83	IntraLATA Calls Completed
B84	InterLATA Intrastate Calls Completed
B85	InterLATA Interstate Calls Completed
B86	Local DEMs, thousands
B87	Intrastate DEMs, thousands
B88	Interstate DEMs, thousands
B89	Local Business/Residential DEMs
B90	Intrastate Business/Residential DEMs
B91	Interstate Business/Residential DEMs
B92	BH Fraction of Daily Usage
B93	Annual to Daily Usage Reduction Factor
B94	Residential Holding Time Multiplier
B94	Business Holding Time Multiplier
B95	Residential Call Attempts/BH
B95	Business Call Attempts/BH

Interoffice Investment

B96	OC-48 ADM, installed, 48 DS-3s
B96	OC-48 ADM, installed, 12 DS-3s
B96	OC-3/DS-1 Terminal Multiplexer, installed, 84 DS-1s
B96	Investment per 7 DS-1s
B97	Number of Fibers
B98	Pigtails, per strand
B99	Optical Distribution Panel
B100	EF&I, per hour
B101	EF&I, hours
B102	Regenerator, installed
B103	Regenerator Spacing, miles
B104	Channel Bank Investment/24 lines
B105	Fraction of SA lines requiring multiplexing
B106	Digital Cross Connect System, installed per STS3
B107	Transmission Terminal Fill (DS-0 level)
B108	Fiber Cable
B109	Number of Strands per ADM
B110	Buried Fraction
B111	Buried Placement
B112	Buried Sheath Addition
B110	Aerial Fraction
B113	Conduit
B113	Spare Tubes per route
B111	Conduit Placement
B114	Pullbox Spacing
B115	Pullbox Investment
B116	Pole Spacing, ft.
B117	Pole Material
B117	Labor (basic)

B118	Fraction of poles and buried/underground placement common with feeder
B119	Fraction of aerial structure assigned to telephone
B119	Fraction of buried structure assigned to telephone
B119	Fraction of underground structure assigned to telephone

Transmission Parameters

B120	Operator Traffic Fraction
B121	Total Interoffice Traffic Fraction
B122	Maximum Trunk Occupancy, CCS
B123	Trunk Port, per end
B124	Direct Routed fraction of local interoffice
B125	Tandem Routed fraction of intraLATA traffic
B126	Tandem Routed fraction of interLATA traffic
B127	POPs per Tandem Location

Tandem Switching

B128	Real Time Limit, BHCA
B129	Port Limit, trunks
B130	Common Equipment Investment
B131	Maximum Trunk Fill
B132	Maximum Real Time Occupancy
B133	Common Equipment Intercept Factor
B134	Entrance Facility Distance from Serving Wire Center & IXC POP

Signaling

B135	STP Link Capacity
B136	STP Maximum Fill
B137	STP investment, per pair, maximum
B138	STP investment, per pair, minimum
B139	Link Termination, both ends
B140	Signaling Bit Rate
B141	Link Occupancy
B142	C Link Cross Section
B143	ISUP Messages per interoffice BHCA
B144	ISUP Messages length, bytes
B145	TCAP Messages per transaction
B146	TCAP Message Length, bytes
B147	Fraction of BHCA requiring TCAP
B148	SCP investment/transaction/second

OS and Public Telephone

B149	Investment per position
B150	Maximum Utilization per position, CCS
B151	Operator Intervention Factor
B152	Public Telephone Equipment Investment, per station

ICO Parameters

B153	ICO STP Investment per line, Equipment
B154	ICO Local Tandem Investment per line, Equipment
B155	ICO OS Tandem Investment per line, Equipment
B156	ICO SCP Investment per line, Equipment

B157	ICO STP/SCP Wire Center Investment per line
B158	ICO Local Tandem Wire Center Investment per line
B159	ICO OS Tandem Wire Center Investment per line
B160	ICO C-Link / Tandem A-Link Investment per line

Note: The Switching and Interoffice Transmission Module also uses input B16.

Expense

Cost of Capital

B161	Cost of Debt
B161	Debt Fraction
B161	Cost of Equity

Depreciation and Net Salvage

B162	Motor Vehicles
B162	Garage Work Equipment
B162	Other Work Equipment
B162	Buildings
B162	Furniture
B162	Office Support Equipment
B162	Company Comm. Equipment
B162	General Purpose Computer
B162	Digital Electronic Switching
B162	Operator Systems
B162	Digital Circuit Equipment
B162	Public Telephone Terminal Equipment
B162	Poles
B162	Aerial Cable – metallic
B162	Aerial Cable – non metallic
B162	Underground Cable – metallic
B162	Underground Cable – non metallic
B162	Buried Cable – metallic
B162	Buried Cable – non metallic
B162	Intrabuilding Cable – metallic
B162	Intrabuilding Cable – non metallic
B162	Conduit Systems

Structure Fraction Assigned to Telephone

B163	Distribution Aerial
B163	Distribution Buried
B163	Distribution Underground
B163	Feeder Aerial
B163	Feeder Buried
B163	Feeder Underground

Other

B164	Income Tax Rate
B165	Corporate Overhead Factor
B166	Other Taxes Factor
B167	Billing/Bill Inquiry per line per month

B168	Directory Listing per line per month
B169	Forward-looking Network Operations Factor
B170	Alternative CO Switching Factor
B171	Alternative Circuit Equipment Factor
B172	EO Non Line-Port Cost Fraction
B173	Per line monthly LNP cost
B174	Carrier – Carrier Customer Service, per line per year
B175	NID Expense per line per year
B176	DS-0/DS-1 Terminal factor
B177	DS-1/DS-3 Terminal factor
B178	Average Lines per Business Location
B179	Average Trunk Utilization

Excavation and Restoration

Underground Excavation

B180	Trenching, per Foot
B180	Backhoe Fraction
B180	Backhoe Cost, per Foot
B180	Hand Trench Fraction
B180	Hand Trench Cost per Foot

Underground Restoration

B181	Cut/Restore Asphalt Fraction
B181	Cut/Restore Asphalt, per Foot
B181	Cut/Restore Concrete Fraction
B181	Cut/Restore Concrete, per Foot
B181	Cut/Restore Sod Fraction
B181	Cut/Restore Sod, per Foot
B181	Simple Backfill, per Foot
B181	Pavement, per Foot
B181	Dirt, per Foot

Buried Excavation

B182	Plow Fraction
B182	Plow per Foot
B182	Trench per Foot
B182	Backhoe Fraction
B182	Backhoe, per Foot
B182	Hand Trench Fraction
B182	Hand Trench, per Foot
B182	Bore Cable Fraction
B182	Bore Cable, per Foot

Buried Installation and Restoration

B183	Push Pipe/Pull Cable Fraction
B183	Push Pipe/Pull Cable per Foot
B183	Cut/Restore Asphalt Fraction
B183	Cut/Restore Asphalt, per Foot
B183	Cut/Restore Concrete Fraction
B183	Cut/Restore Concrete, per Foot
B183	Cut/Restore Sod Fraction

B183 Cut/Restore Sod, per Foot
B183 Restoral Not Required
B183 Simple Backfill

Surface Texture
B184 Percent of CBG Likely Affected and Effect of Texture Code

Part 2: Input Parameter Definitions and Default Values

DISTRIBUTION INPUT PARAMETERS

B1. NID Investment per line

Definition

The investment in the components of the network interface device (NID), the device at the customers' premises within which the drop wire terminates, and which is the point of subscriber demarcation.

Default Values

NID Materials and Installation	
	Costs
Residential NID case, no protector	$10.00
Residential NID basic labor	$15.00
Installed NID case	*$25.00*
Maximum lines per res. NID	6
Protection block, per line	$4.00
Business NID case, no protector	$25.00
Business NID basic labor	$15.00
Installed NID case	*$40.00*
Protection block, per line	$4.00

B2. Drop Distance

Definition

The average length of a drop cable in each of nine density zones.

Default Values

Drop Distance by Density	
Density Zone	Drop Distance, feet
0-5	150
5-100	150
100-200	100
200-650	100
650-850	50
850-2,550	50
2,550-5,000	50
5,000-10,000	50
10,000+	50

B3. Drop Placement, Aerial and Buried

Definition

The total placement cost by density zone of an aerial drop wire, and the cost per foot for buried distribution cable placement, respectively.

Default Values

Drop Placement, Aerial & Buried		
Density Zone	Aerial, total	Buried, per foot
0-5	$23.33	$0.60
5-100	$23.33	$0.60
100-200	$17.50	$0.60
200-650	$17.50	$0.60
650-850	$11.67	$0.60
850-2,550	$11.67	$0.60
2,550-5,000	$11.67	$0.75
5,000-10,000	$11.67	$1.50
10,000+	$11.67	$5.00

B4. Buried Drop Sharing Fraction

Definition

The fraction of buried drop cost that is assigned to the telephone company. The other portion of the cost is borne by other utilities.

Default Value

Buried Drop Sharing Fraction	
Density Zone	Fraction
0-5	.50
5-100	.50
100-200	.50
200-650	.50
650-850	.50
850-2,550	.50
2,550-5,000	.50
5,000-10,000	.50
10,000+	.50

B5. Drop Structure Fractions

Definition

The percentage of drops that are aerial and buried, respectively, as a function of CBG density zone.

Default values

Drop Structure Fractions		
Density Zone	Aerial	Buried
0-5	.25	.75
5-100	.25	.75
100-200	.25	.75
200-650	.30	.70
650-850	.30	.70
850-2,550	.30	.70
2,550-5,000	.30	.70
5,000-10,000	.60	.40
10,000+	.85	.15

B6. Number of Lines per Business Location

Definition

The average number of business lines per business location, used to calculate NID and drop cost.

Default Value

4

B7. Terminal and Splice Investment per line

Definition

The installed cost per line for the terminal and splice that connect the drop to the distribution cable.

Default Value

Terminal and Splice Investment per Line	
Buried	Aerial
$42.50	$32.00

B8. Drop Cable Investment, per foot and Pairs per Wire

Definition

The investment per foot required for aerial and buried drop wire, and the number of pairs in each type of drop wire.

Default Values

Drop Cable Investment, per foot		
	Material Cost Per foot	Pairs
Aerial	$0.095	2
Buried	$0.140	3

B9. Distribution Cable Sizes

Definition

Cable sizes used for distribution cable variables (in pairs).

Default Values

Cable Sizes
2400
1800
1200
900
600
400
200
100
50
25
12
6

B10. Copper Distribution Cable, $/foot

Definition

The cost per foot of copper distribution cable, as a function of cable size, including the costs of engineering, installation, and delivery, as well as the cable material itself.

Default Values

Copper Distribution Cable, $/foot	
Cable Size	Cost/foot (including engineering, installation, delivery and material)
2400	$20.00
1800	$16.00
1200	$12.00
900	$10.00
600	$7.75
400	$6.00
200	$4.25
100	$2.50
50	$1.63
25	$1.19
12	$0.76
6	$0.63

B11. Riser Cable, $/foot

Definition

The cost per foot of copper riser cable (cable inside high-rise buildings), as a function of cable size, including the costs of engineering, installation, and delivery, as well as the cable material itself.

Default Values

Riser Cable, $/foot	
Cable Size	Cost/foot (including engineering, installation, delivery and material)
2400	$20.00
1800	$16.00
1200	$12.00
900	$10.00
600	$7.75
400	$6.00
200	$4.25
100	$2.50
50	$1.63
25	$1.19
12	$0.76
6	$0.63

B12. Pole Investment

Definition

The installed cost of a 40' Class 4 treated southern pine pole.

Default Value

Pole Investment	
Materials	$201
Labor	$216
Total	*$417*

B13. Buried Copper Cable Sheath Multiplier (feeder and distribution)

Definition

The additional cost of the filling compound used in buried cable to protect the cable from moisture expressed as a multiplier of the cost of non-armored cable.

Default value

1.04

B14. Conduit Material Investment per foot

Definition

Material cost per foot of duct for 4" PVC.

Default Value

$0.60

B15. Spare Tubes per Route (distribution)

Definition

The number of spare tubes (i.e., conduit) placed per route.

Default Value

1

B16. Regional Labor Adjustment Factor

Definition

A factor that adjusts the labor cost portion of certain investments to account for regional differences in the availability of trained labor, union contracts, and cost of living factors.

Default value

1.0

B17. Distribution Structure Fractions

Definition

The relative amounts of different structure types supporting distribution cable in each density zone. Aerial distribution cable is attached to telephone poles or buildings, buried cable is laid directly in the earth, and underground cable runs through underground conduit. In the highest two density zones, aerial structure includes riser and block cable.

Defaults

Distribution Cable Structure Fractions			
Density Zone	Aerial/Block Cable	Buried Cable	Underground Cable (calculated)
0-5	.25	.75	*0*
5-100	.25	.75	*0*
100-200	.25	.75	*0*
200-650	.30	.70	*0*
650-850	.30	.70	*0*
850-2,550	.30	.70	*0*
2,550-5,000	.30	.65	*.05*
5,000-10,000	.60	.35	*.05*
10,000+	.85	.05	*.10*

B18. Distribution Cable Fill Factors

Definition

The spare or excess capacity in a distribution cable, calculated as the ratio of the number of assigned pairs to the total number of available pairs in the cable.

Default Values

Distribution Cable Fill Factors	
Density Zone	Fill Factors
0-5	.50
5-100	.55
100-200	.55
200-650	.60
650-850	.65
850-2,550	.70
2,550-5,000	.75
5,000-10,000	.75
10,000+	.75

B19. Distribution Pole Spacing

Definition

Spacing between poles supporting aerial distribution cable.

Default Values

Distribution Pole Spacing	
Density Zone	Spacing
0-5	250
5-100	250
100-200	200
200-650	200
650-850	175
850-2,550	175
2,550-5,000	150
5,000-10,000	150
10,000+	150

B20. Distribution Multiplier, Difficult Terrain

Definition

The amount of extra distance required to route distribution and feeder cable around difficult soil conditions, expressed as a multiplier of the distance calculated for normal situations.

Default

1.0

B21. Rock Depth Threshold, inches

Definition

The depth of bedrock, above which (that is, closer to the surface) additional costs are incurred for placing distribution or feeder cable.

Default

24 inches

B22. Hard Rock Placement Multiplier

Definition

The increased cost required to place distribution or feeder cable in bedrock classified as hard, when it is within the rock depth threshold of the surface, expressed as a multiplier of normal installation cost per foot.

Default

3.5

B23. Soft Rock Placement Multiplier

Definition

The increased cost required to place distribution or feeder cable in bedrock classified as soft, when it is within the rock depth threshold of the surface, expressed as a multiplier of normal installation cost per foot.

Default

2.0

B24. Sidewalk / Street Fraction

Definition

The fraction of small (< .03 sq. mile) downtown CBGs that are streets and sidewalks.

Default

.20

B25. Local RT (per cluster) thresholds – Maximum Total Distance

Definition

The maximum potential distribution length, in feet, above which Remote Terminals are located at the center of each cluster, rather than at the center of the CBG, in order to reduce the remaining distribution length.

Default

18,000

B26. Town Factor

Definition

The fraction of business and residential customers that are assumed to be located in towns, as opposed to surrounding areas, for those cases in which the model determines that population should be clustered in towns.

Default

.85

B27. Maximum Lot Size, in acres

Definition

The maximum effective lot size in a CBG, above which it is assumed that the population is clustered into areas whose effective lot size is the default value (that is, there is a cap on the amount of land each subscriber occupies).

Default

3.0 acres

B28. Town Lot Size, in acres

Definition

The lot size of subscribers residing in towns when the model determines that clustering in towns is appropriate.

Default

3.0 acres

B29. Repeater Investment, Installed

Definition

The investment per T1 repeater, including electronics, housing, and installation, for T1 extension of loops longer than 18,000 ft.

Default

$300.00

B30. Integrated COT, installed

Definition

The installed COT investment per road cable required to terminate the DLC connection serving subscribers along roads longer than 18,000 ft.

Default

$4,400.00

B31. Remote Multiplexer Common Equipment Investment, Installed

Definition

The installed investment per subsidiary remote terminal used to serve subscribers along road cables longer than 18,000 ft.

Default

$5,510.00

B32. Channel Unit Investment per Subscriber

Definition

The investment per line in POTS channel units installed in subsidiary RTs serving subscribers located along roads longer than 18,000 ft.

Default

$125.00

B33. COT Investment per RT, Installed

Definition

The installed investment per subsidiary RT in protocol conversion equipment for interfacing with the integrated COT.

Default

$1,265.00

B34. Serving Area Interface (SAI) Investment

Definition

The installed investment in the SAI that acts as the physical interface point between distribution and feeder cable.